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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/816,691 | 04/01/2004 | Eric R. Blomiley | MI22-2510 | 1647 |
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| WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201 | | | EXAMINER DHINGRA, RAKESH KUMAR | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/816,691 | Applicant(s) BLOMILEY ET AL. | |
| | Examiner Rakesh K. Dhingra | Art Unit 1763 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-30, 32-40, 44 and 157-161 is/are pending in the application.
- 4a) Of the above claim(s) 9, 10, 15-21, 23-29, 32, 33, 35, 36, 38, 39, 44 and 157-160 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 11-14, 22, 30, 34, 37, 40 and 161 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>03/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/7/07 has been entered.

Claim Objections

Claim 8 is objected to because of the following informalities:

Claim 8 recites in line 1 "The method of claim 1" which should read as "The apparatus of Claim 1" since Claim 1 pertains to an apparatus.

Appropriate correction is required.

Response to Arguments

Applicant's arguments with respect to claims 1-6, 8, 11-14, 22, 30, 31, 34, 37, 40 and 154-156 have been considered but are moot in view of the new ground(s) of rejection as explained hereunder.

Applicant has amended claims 1 and 8 by adding new limitations (for example in claim 1 – "the radially inner sidewall comprising a portion which aligns with and extends outwardly from the recess outer peripheral sidewall perpendicularly relative to the recess base").

Further, applicant has added new claim 161 and cancelled claims 31 and 154-156.

New references have been found (US Patent No. 7,024,105 – Fodor et al) and (US Patent No. 5,882,419 – Sinha et al) that read on amended claim 1 limitations. Accordingly claim 1 and its dependent claims have been rejected under 35 USC 103 (a) as explained below. Applicant's argument regarding

rejection of claim 34 is rendered moot since the same is now rejected over Fodor et al in view of Foree et al (new reference) as explained below. Further, claim 37 and new claim 161 have also been rejected under 35 USC 103 (a) as explained below.

Further, claims 1, 11-14, 22 and 47 have been provisionally for nonstatutory obviousness-type double patenting over claims 45, 47, 52, 55-58 and 66 of copending Application No. 11/399,889 (US PG PUB No. 2006/0180087) as explained below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al (US Patent No. 5,882,419).

Regarding Claim 1: Sinha et al teach an apparatus (Figures 1, 6) comprising:

A heater plate 18 (body of substrate support/susceptor) with a substrate receiving surface 26 and having a recess formed (by the raised guide receiving portion 222), the recess comprising an outer peripheral sidewall and a recess base and with the outer peripheral sidewall extending perpendicularly from the recess base;

A plurality of guide pins 224 (projections) extending outwardly from a portion of the face, and comprising radially inner sidewall (vertical portion of guide pin wall which extends outwardly from the recess outer peripheral sidewall to a projection upper surface), the radially inner sidewall comprising a portion which aligns with and extends outwardly from the recess outer peripheral sidewall perpendicularly relative to the recess base (column 13, line 5 to column 14, line 64). Sinha et al teach that plurality of guide pins 224 (projections) are used but do not explicitly teach that number of projections is at least three. However it would be obvious to use at least three projections for a circular wafer, to enable guide the wafer uniformly into the recess pocket.

Therefore it would have been obvious to provide at least three projections in the apparatus of Sinha et al to enable guide the wafer uniformly into the recess pocket.

Regarding Claims 2-4, 6: Sinha et al teach that face 222 is annular and is substantially planar [Figure 6].

Regarding Claim 11: Sinha et al teach that guide pins 224 (projections) are received about a circle on the face portion 222 (Figure 6).

Claims 1-5, 8, 11-14, 22, 30 and 161 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fodor et al (US Patent No. 7,024,105).

Regarding Claim 1: Fodor et al teach a substrate support (Figures 2A, 2B, 8A, 9A-9D) comprising:
a body 804 having a substrate receiving side, the substrate receiving side comprising a face having a substrate receiving recess formed therein, the recess comprising an outer peripheral sidewall 814 and a recess base 816, the outer peripheral sidewall connecting with and extending perpendicularly from the recess base. Fodor et al also teach the ring 134 can be formed integrally with the body 804 (Figures 9A, 9B). Fodor et al further teach that the annular ring 134, instead of having a continuous lip 302, can also have plurality of crowns (like projections) {Figures 9C, 9D} and extend outwardly from a portion of the face, the crowns (projections) respectively comprising a radially inner sidewall 818 which extends outwardly from the recess outer peripheral sidewall 814 to lip 902 (like a projection upper surface). Fodor et al also teach radially inner sidewall comprising a portion (upper portion of wall 814) which aligns with and extends outwardly from the recess outer peripheral sidewall 814 (due to being formed integrally) perpendicularly relative to the recess base 816 (column 6, line 42 to column 7, line 18).

Regarding Claims 2-4, 6: Fodor et al teach that face 806 is annular and is substantially planar [Figures 8, 9A-9D].

Regarding Claims 5: Fodor et al teach the substrate receiving recess 816 is annular (Figures 9C, 9D).

Regarding Claim 8: Fodor et al teach that all of recess outer peripheral sidewall 814 extends perpendicular to the recess base 816 (Figure 9B).

Regarding Claim 11: Fodor et al teach that crowns (projections) are received about a circle on the face portion 806 (Figure 9C).

Regarding Claims 12-14: Fodor et al teach width of crowns ranges from 1.5 to 5 mm and also teach that crowns can number from 3 to 12. Assuming the inner diameter of ring to be 200 mm (size of wafer), the circumference of ring would be approx 600 mm, and assuming the number of projections to be

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say 6, the projections would collectively occupy between 1.5 % to 5% of the circumference of the circle which meets the claim limitations of 3-10% (column 5, lines 32-45).

Regarding Claim 22: Fodor et al teach the outermost peripheral edge of projection is radially inward of the outermost peripheral edge of body 804 (Figure 9B).

Regarding Claim 30: Fodor et al teach the recess outer peripheral sidewall 814 and the radially inner sidewall (formed integrally and extending from peripheral side wall) have a combined elevational length which is greater than thickness of a substrate 112 for which the susceptor is designed (Figure 9B).

Regarding Claim 161: Fodor et al teach radially inner side wall comprises bevel 818 (another portion which angles down towards recess 816 and joins with said portion. (inner side wall portion formed integrally as extension of outer peripheral sidewall 914 (Figure 9B).

Claims 34, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fodor et al (US Patent No. 7024105) in view of Foree (US PG PUB No. 2003/0168174).

Regarding Claim 34: Fodor et al teach all limitations of the claim (as already explained above under claim 1) including a recess comprising an outer peripheral sidewall 814 and a recess base 816, the outer peripheral sidewall connecting with and extending perpendicularly from the recess base, and at least three crowns (projections) formed integrally with the body 804 (Figures 9A, 9B) and extending outwardly from a portion of the face, the crowns (projections) respectively comprising a radially inner sidewall 818 which extends outwardly from the recess outer peripheral sidewall 814 to lip 902 (like a projection upper surface).

Fodor et al do not teach the recess outer peripheral sidewall and the radially inner sidewall have a combined elevational length which is less than thickness of a substrate for which the susceptor is designed.

Foree teaches a susceptor 100 (Figures 1A, 1B) with a recess and a shoulder 4 (like a projection) and where combined elevational length of outer peripheral sidewall and the radially inner sidewall is less than thickness of the substrate 1 (paragraph 0010).

Therefore it would have been obvious to use a susceptor with recess where the recess outer peripheral sidewall and the radially inner sidewall have a combined elevational length which is less than thickness of a substrate to enable obtain a laminar gas flow over the surface of the wafer.

Regarding Claim 37: Fodor et al teach the projection upper surface of crowns 902 (projections) has an uppermost elevation which is received higher than an uppermost surface of a substrate for which the susceptor is designed when said substrate is received by said recess 816 (Figure 9B).

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fodor et al (US Patent No. 7024105) in view of Sherstinsky et al (US Patent No. 5,673,922).

Regarding Claim 40: Fodor et al teach all limitations of the claim (as already explained above under claim 1) except that at least a portion of the outer peripheral sidewall is angled radially downward towards the substrate receiving recess.

Sherstinsky et al teach a substrate support (Figures 5-8) for receiving a substrate to be deposited upon, comprising a substrate support member 18 (body) having a substrate receiving side, the substrate receiving side comprising a face having a substrate receiving recess (formed between laminate portion 28 and tapered clearance portion 62) therein, the recess comprising a tapered clearance portion 62 (outer peripheral sidewall) and a recess base (laminate member 28), the outer peripheral sidewall connecting with base of recess (laminate member 28). Sherstinsky et al further teach that clearance portion 62 can have other configurations like simple recess or a compound recess with a tapered portion (implying that a portion of the outer peripheral sidewall could be perpendicular to the recess base 28) [column 6, line 12 to column 9, line 47).

Therefore it would have been obvious to use a susceptor with at least a portion of the outer peripheral sidewall angled radially downward towards the substrate receiving recess as taught by Sherstinsky et al in the apparatus of Fodor et al to provide a gap so as to avoid jamming of substrate in the recess.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 11-14, 22 and 47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 45, 47, 52, 55-58 and 66 of copending Application No. 11/399,889 (US PG PUB No. 2006/0180087) in view of Fodor et al (US Patent No. 7,024,105).

Claims 45, 47, 52, 55-58 of co-pending application teach all limitations of claims 1, 11-14, 22 and 47 of the present application, except that the radially inner sidewall comprises a portion which aligns with and extends outwardly from the recess outer peripheral sidewall perpendicularly relative to the recess base.

Fodor et al teach a substrate support (Figures 2A, 2B, 8A, 9A-9D) comprising:
a body 804 having a substrate receiving side, the substrate receiving side comprising a face having a substrate receiving recess formed therein, the recess comprising an outer peripheral sidewall 814 and a recess base 816, the outer peripheral sidewall connecting with and extending perpendicularly from the recess base. Fodor et al also teach the ring 134 can be formed integrally with the body 804 (Figures 9A, 9B). Fodor et al further teach that the annular ring 134, instead of having a continuous lip 302, can also have plurality of crowns (like projections) {Figures 9C, 9D} and extend outwardly from a portion of the face, the crowns (projections) respectively comprising a radially inner sidewall 818 which extends outwardly from the recess outer peripheral sidewall 814 to lip 902 (like a projection upper surface). Fodor et al also teach radially inner sidewall comprising a portion (upper portion of wall 814) which aligns with and extends outwardly from the recess outer peripheral sidewall 814 (due to being formed integrally) perpendicularly relative to the recess base 816 (column 6, line 42 to column 7, line 18).

Therefore it would have been obvious to use a substrate support with recess and at least three projections extending outwardly from a portion of the base, the projections respectively comprising a radially inner sidewall, which comprises a portion which aligns with and extends outwardly from the recess outer peripheral sidewall perpendicularly relative to the recess base, as taught by Fodor et al in the apparatus of claims 45, 47, 52, 55-58 and 66 of copending Application to provide uniform support to the upper peripheral edge of the substrate in the recess.

This is a provisional obviousness-type double patenting rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh K. Dhingra whose telephone number is (571)-272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Rakesh Dhingra



Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763